

Patent Claims

1. Optical coupling device for injecting light
between two optical waveguide end faces, the
5 geometric position of the one optical waveguide
end face, for example of an optical fibre, being
capable of being varied with respect to the other
optical waveguide end face, for example of an
optical waveguide chip, with the aid of a
10 variable-length element, which carries one of the
two optical waveguides via a holding device and is
fixed to the other optical waveguide by means of
at least one holding block, characterized in that
the variable-length element (8) is connected to a
15 variable-length compensating element (10), whose
length changes with temperature by the same amount
but in the opposite sense as that of the variable-
length element (8), and in that the variable-
length compensating element (10) is fixed to a
20 second holding block (6).
2. Coupling device according to Claim 1,
characterized in that the length of the variable-
length compensating element (10) is selected,
25 taking its coefficient of expansion into account,
such that the length of the variable-length
compensating element (6) changes by the same
amount but in the opposite sense as that of the
variable-length element.
- 30 3. Optical coupling device for injecting light
between two optical waveguide end faces, the
geometric position of one optical waveguide end
face, for example of an optical fibre, being
35 capable of being varied with respect to the other
optical waveguide end face, for example of an
optical waveguide chip, with the aid of a
variable-length element, which carries one of the
two optical waveguides via a holding device and is

fixed to the other optical waveguide by means of
at least one holding block, characterized in that
the holding block has a U-shaped part (22) made of
a material with the same coefficient of thermal
expansion as the chip, in that a T-shaped part
(32) made of a material with the same coefficient
of thermal expansion as the chip is provided, in
that the variable-length element (26) with the
positive coefficient of thermal expansion is
connected to the T-shaped part (32) at its foot
(30) and to the U-shaped part at its base, and in
that two variable-length elements (34, 36) with a
positive coefficient of thermal expansion are
fixed to the legs (40, 42) of the U-shaped part
(22), which consist of the same material as the
variable-length element (26) and have the same
length as the latter and which, on one side, are
fixed to the legs of the U-shaped part (22) and,
on the other side, to the underside (38) of the
crossbar (40) of the T-shaped part (32).

4. Coupling device according to one of Claims 1 to 3,
characterized in that the variable-length elements
consist of aluminium.
5. Coupling device according to one of Claims 1 to 4,
characterized in that the material of the
variable-length compensating elements is a glass
ceramic with the same coefficient of thermal
expansion, preferably the material of the chip.